Nobis
Engineering a Sustainable Future

EPA Region 1 RAC 2 Contract No. EP-S1-06-03

January 23, 2015
Nobis Project No. 80021
MA-4041-2015-D

Via Electronic Submittal

U.S. Environmental Protection Agency, Region 1
Attention: Mr. James DiLorenzo, Task Order Project Officer
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3919

Subject: Review of OU3 Data Gap Analysis and Additional Field Studies Work Plan
Olin Chemical Superfund Site, Wilmington, Massachusetts
Remedial Investigation/Feasibility Study Oversight
Task Order No. 0021-RS-BD-01CH

Dear Mr. DiLorenzo:

Nobis Engineering, Inc. (Nobis) has prepared comments on the OU3 Data Gap Analysis and Additional Field Studies Work Plan dated December 16, 2014, prepared by AMEC Environmental and Infrastructure, Inc., on behalf of the Olin Corporation (Olin) for the Olin Chemical Superfund Site (Site) in Wilmington, Massachusetts.

In addition to the formal comments on the OU3 Data Gap Analysis and Additional Field Studies Work Plan presented below, I am sending a separate attachment with comments germane to the review of the PRP's upcoming OU3 Remedial Investigation Report. Should you have any questions or comments, please contact me at (978) 703-6013, or hford@nobiseng.com.

Sincerely,

NOBIS ENGINEERING, INC.

Heather M. Ford
Associate / Senior Project Manager

Attachment

c: File 80021/MA

SEMS Doc ID 644092

Nobis Engineering, Inc.
585 Middlesex Street
Lowell, MA 01851
T (978) 683-0891

REVIEW OF
OU3 DATA GAP ANALYSIS AND ADDITIONAL FIELD STUDIES WORK PLAN
OLIN CHEMICAL SUPERFUND SITE
WILMINGTON, MASSACHUSETTS

Nobis Engineering, Inc. (Nobis) has been requested by the U.S. Environmental Protection Agency (EPA) to review the OU3 Data Gap Analysis and Additional Field Studies Work Plan (dated December 16, 2014) (Report) prepared by AMEC Environmental and Infrastructure, Inc., on behalf of the Olin Corporation (Olin) for the Olin Chemical Superfund Site (Site) in Wilmington, Massachusetts.

The Report provides an updated conceptual site model (CSM) and identifies data gaps for work to be completed before finalizing the OU3 Remedial Investigation (RI). Nobis has identified several issues that require clarification or additional work, as described below.

1.0 GENERAL COMMENTS

1. Section 2.1.2.1: Verifying that the contours presented on Figure 2.1-3 are representative of Site conditions is not possible given that there are so few data points across such a wide area. Site data is especially sparse in the area of Eames Street. Were the contours on the figure developed using all bedrock wells for evaluating bedrock groundwater elevations? If it has not been performed, Nobis recommends a synoptic groundwater round be completed at all viable bedrock (and possible overburden) wells to gain a more complete data set of groundwater elevations. Figure 2.1-3 shows a very thin data set with many gaps with respect to groundwater elevation in bedrock and, by extension, the supporting data set. Given the high concentrations of contaminants near Eames Street, adjacent to the containment area, an understanding of bedrock gradients with supporting data are necessary. See Comment 4 below that presents the need for an additional monitoring well in this area.

2. Section 2.1.2.: Nobis appreciates the inclusion of the DAPL delineation figure (Figure 2.1-7). However, outside of correlating the DAPL pools to interpreted bedrock topography, the approach to delineating these pools is not discussed. In order to gain agreement that these areas have been appropriately identified and delineated, the data and evaluation approach should be presented and discussed. Additionally, the dimensions of the small DAPL pool

shown on the figure within the MMBW are unknown. This pool is currently defined as a small circle at the GW-83 cluster. Given that the bedrock topographic low in this area appears to extend to the northwest (southwest of MP-5 and east of the GW-88 cluster), what evidence is there that DAPL would not extend throughout this bedrock low? Olin/AMEC may elect to investigate bedrock depths and/or add additional well control to determine this. Although Olin/AMEC have defined this DAPL pool as a relatively small area, it appears to be a significant source of contamination to the MMBW and downgradient residential wells, as shown by the diffuse layer delineation (Figure 2.1-8). Nobis believes that this DAPL pool (around 83D) is likely much larger than currently delineated or there are other DAPL sources in the MMWB given the large area of diffuse groundwater in this area.

3. Section 2.3: Review of Figure 2.3-1 suggests that several areas have not been fully delineated in terms of NDMA contamination in the **overburden**. Areas which were not proposed for additional evaluation by Olin/AMEC, but Nobis recommends these overburden areas be evaluated, include the following locations (areas are underlined below):

   a. East of GW-4D, with NDMA concentrations of 830 ng/L and 750 ng/L. Upon review of the groundwater contaminant figures, this area also represents a data gap for ammonia, sulfate, and chloride.

   b. Southeast of GW-65D. GW – 61 is non-detect along the southeast flank of the NDMA plume. NDMA was detected to the northeast of this area. VOCs (such as 1,2-DCA) and metals (including hexavalent chromium) also have data gaps in this area. This area is likely downgradient of GW-84D, which had elevated NDMA concentrations (13,000 ng/L).

   c. North of GW-65D (and to a lesser degree, GW-64D). NDMA concentrations were consistently above 100 ng/L here and should be bounded to the north. Metals (specifically arsenic) should also be sampled in this area.

   d. East of the northern portion of the Olin property (near/north of GW-48S/D). Given that NDMA has been detected along the eastern property boundary, how far might NDMA

extend to the east? This area should also be evaluated for NDPA, TMPs, hydrazine, and kempore, given the detections in GW-52D and/or GW-52S. Note that GW-48D was last sampled in 1992 for these analytes.

e. MMBW monitoring wells, especially GW-85, GW-86D, and GW-59D, had elevated groundwater concentrations ten years ago. Given the importance of the MMBW area to the overall understanding of contaminant flow, Nobis recommends a current sampling round for at least the MMBW area.

f. Monitoring wells GW-50D, GW-307, and GW-32D have an apparent eastern component of groundwater flow with elevated groundwater concentration. As there are no down gradient monitoring wells, Nobis recommends placement of a down gradient monitoring well.

4. Section 2.3: Review of Figure 2.3-2 suggests that several areas have not been fully delineated in terms of NDMA contamination in the **bedrock**. Nobis recommends additional evaluation of the bedrock areas presented below (areas are underlined):

   a. GW-62BR/BRD is between the DAPL/diffuse plumes in the overburden. The extremely high bedrock elevations (including in the deep bedrock) suggest that highly contaminated groundwater may be migrating from the bedrock in this area, and that this part of the bedrock may be a sink (and eventual source) for contaminated groundwater. Additional well control and bedrock evaluation should be conducted in this area, to the east, south, and north (if access is possible).

   b. The GW-406BRS/BRD cluster has had sporadic elevated NDMA concentrations (up to 1800 ng/L). There are no NDMA results for overburden groundwater at this cluster. Given that this well cluster is close to the groundwater divide and may migrate north, an additional bedrock well should be added north of this location (across Eames Street). Note that TMPs have also been consistently detected at this well cluster.

   c. GW-202 cluster. The elevated concentrations of NDMA in bedrock southwest of the slurry wall suggest that bedrock may be a reservoir of contamination in this area. Additional bedrock wells should be installed to the south, southeast and northwest to

evaluate the extent of bedrock contamination and the potential for migration in bedrock.

d. Figures 2.1-7 and 2.1-8. At the top of page 2-16 "the maximum extent of groundwater impacts is defined by NDMA and is presented…. “ . Nobis recommends that Olin/AMEC also define the contamination by the extent of DAPL pools (as shown on Figure 2.1-7) and diffuse material (Figure 2.1-8).

e. Nobis recommends including **impacted residential wells** in the delineation of the extent of impact to bedrock. Reasons for excluding these locations are not discussed. At many of these locations, there have been multiple detections of NDMA above the laboratory reporting limits. Monitoring wells with lower or equivalent concentrations were included in the delineation shown on the Figure 2.3-2. If it is known that a residential well is installed into bedrock, and NDMA has been detected in samples collected from those wells, it is reasonable to assume that those wells have been impacted and should be included in the delineation of impacts to bedrock as shown on Figure 2.3-2.

f. In Section 2.4 - Data Gaps – the distribution of contaminants should not just include numeric standards for individual contaminants but also those areas where diffuse material or DAPL have made portions of the aquifer unusable. The overall extent of these portions of the aquifer is poorly defined particularly beneath MMBW. The ultimate fate of this material is unknown as sampling at MMBW has not been definitive. In particular, in the vicinity of GW-62BR where NDMA has been detected at over 10,000 ng/L, how wide spread is the DAPL in bedrock in this area and will it remain there forever? (There are limited remedial responses other than pumping).

g. Section 2.5 - Summary. There remains the unanswered question(s) of the extent of DAPL within bedrock, including the areas around GW-62BR, GW-83D, GW-58 D, or onsite at MP-1. Discussions on how will these elevated concentrations be managed, and is enough known about the extent of contamination to impose institutional controls, or conduct a remedial action, for the Site will need to be presented.

5. Review of the contaminant distribution figures suggests that some existing wells should be sampled for additional analytes not included in the original RI work plan. These include the following:

    a. GW-57D should be sampled for hydrazine, given that this compound was detected in both samples in GW-44D and one sample in MP-3 (both upgradient).

    b. Given that hydrazine was detected at relatively high concentrations in 2004 in GW-43S (west-northwest of the slurry wall), this well, or another well in the area (GW-45S or GW-69S), should be sampled to confirm/refute the 2004 concentrations.

    c. Additional samples should be collected to determine the extent of the OPEX concentrations detected in MP-4. Recommend collecting samples from GW-70D to confirm that the OPEX is not migrating with the primary DAPL plume.

    d. GW-40S should be sampled for OPEX analysis to determine the downgradient extent of the detection at SL-2.

6. Section 3.3: The question of testing town wells is on hold pending a new Memorandum to be submitted by Olin/AMEC later. Review of the proposed technical Memorandum may or may not still require additional action. These wells are the most likely future exposure point for groundwater as drinking water.

7. Section 3.3, Response #5: The “recent” historical data from the Sanmina property wells were sampled in 1992 through 2004. Nobis recommends re-sampling these wells to assess whether future use of these wells should be restricted.